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EXAMINER	
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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Paper No. 042204

Application Number: 09/921,604
Filing Date: August 06, 2001
Appellant(s): KOMODA, MICHIO

For Appellant

Attorney's Docket No. 027260-461

EXAMINER'S ANSWER

(1) Real Party in Interest

A statement identifying the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

A statement identifying the real party in interest is contained in the brief.

(3) Status of Claims

The statement of the status of the claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Invention

The summary of invention contained in the brief is correct.

(6) Issues

The appellant's statement of the issues in the brief is correct.

(7) Grouping of Claims

Appellant's brief includes a statement that claims 20-21 stand or fall together.

(8) Claims Appealed

The copy of the appealed claims 20-21 contained in the Appendix to the brief is correct.

(9) Prior Art of Record

6,378,109	Young et al.	4-2002
5,900,759	Tam	5-1999

(10) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claims 20-21 are rejected under 35 U.S.C. 103(a). This rejection is set forth in prior Office Action, Papers No. 10/29/2003 (Final Office Action) and 11/20/2003 (Advisory Action).

Claims 20 and 21 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Young et al. (US Patent 6,378,109).

Young teaches method of simulation for gate oxide integrity check on an entire IC to eliminate glitch errors including:

A circuit modification method comprising the steps of:

determining whether a glitch error (cross talk violation) is caused in said predetermined wire (victim) by an aggressor comprised of one or more other wires (col.9, ll.10-20);

when determining that a glitch error (cross talk violation) is caused in said predetermined wire (victim) by the aggressor, inserting repeaters into victim wire to increase driving ability of the driving circuit (col.11, ll.57-61).

Young teaches: "In response to a detected crosstalk noise violation (glitch error), the design of the IC can be modified to eliminate the violation by ... insertion of repeaters in the victim signal, **for example**." (col.11, ll.57-61). The insertion of repeaters (or drivers or buffers) would increase drivability, thereby eliminating glitch error.

Young lacks a method, which replaces a driving circuit for driving the victim wire with another one having a higher driving ability. It is well known in the integrated circuit design that a driver or a buffer can be sized up or down. Sizing up means making the driver or the buffer or the repeater size larger in order to increase drivability. Therefore it would have been obvious to a person of ordinary skills in the art at the time the invention was made to replace the driver (the driving circuit) by another driver (sized up driver) because this would equally

increase the drivability, thereby it would also equally eliminates violations of crosstalk noise or glitch error.

(11) Response to Argument

A. Rejection of claims 20-21 is not erroneous because it would have been obvious to a person of ordinary skills in the art at the time the invention was made that modifying the design of the integrated circuit by inserting repeaters/buffers into victim wire is equal to modifying the design by replacing a driver with a new driver having higher driving ability because sizing drivers is known in the integrated circuit design.

Inserting repeaters/buffers means increasing the size of the modified driver circuit. Other example of increasing the size of the driver is achieved by increasing a size of the buffer (Tam, col.3, ll.22-34). Tam (US Patent 5,900,759), for example, to reduce effect of glitching discloses sizing or resizing the buffer to obtain another one with higher driving ability. In more details resizing of the buffer is illustrated by following example. Tam, for example, recites: " Still other designs employ ... increasing the size of the output buffer ... to prevent propagation of the glitch." (col.3, ll.22-34).

B. Young teaches: "In response to a detected crosstalk noise violation, the design of the IC can be modified to eliminate the violation by ... insertion of repeaters in the victim signal, **for example**." (col.11, ll.57-61). Insertion of repeaters (or drivers) means increasing the drivability. It is well known in the integrated circuit design that a driver or a buffer can be sized up or down. Sizing up means making the driver or the buffer or the repeater size larger in order to

increase drivability. Therefore it would have been obvious to a person of ordinary skills in the art at the time the invention was made to replace the driver (the driving circuit) by another driver (sized up driver) because this would equally increase the drivability, thereby it would also equally eliminates violations of crosstalk noise or glitch error.

Tam replaces the driver/buffer by increasing the size of the buffer and thereby replacing the driver in the victim wire with another one having the higher driving ability then the initial driver. Therefore insertion of drivers is equally to the replacement of the driver with another one with higher drivability.

C. Young discloses that in response to a detected crosstalk noise violation (glitch error), the design of the IC can be modified ... by insertion of repeaters in the victim signal, for example." Insertion of repeaters (or drivers) means increasing the drivability. It is well known in the integrated circuit design that a driver or a buffer can be sized up or down. Sizing up means making the driver or the buffer or the repeater size larger in order to increase drivability. Therefore it would have been obvious to a person of ordinary skills in the art at the time the invention was made to replace the driver (the driving circuit) by another driver (sized up driver) because this would equally increase the drivability, thereby it would also equally eliminates violations of crosstalk noise or glitch error.

Applicant argues that replacing a driving circuit means that the number of buffers to be inserted is not increased, and in Young the insertion of buffer circuits would increase the number of elements in the circuit. Examiner agreed

that inserting of buffers would increase number of elements. But Applicant in claims 20 and 21 fails to teach or suggest or render that number of elements in the modified/replacing circuit is the same as in the original circuit. Examiner believes that replacement of the driving circuit with other may increase number of elements **within the replaced driving circuit**.

Insertion of repeaters (or drivers) means increasing the drivability. It is well known in the integrated circuit design that a driver or a buffer can be sized up or down. Sizing up means making the driver or the buffer or the repeater size larger in order to increase drivability. Making that driver or driving circuit would ihcrease the number or elements within that circuit. Therefore it would have been obvious to a person of ordinary skills in the art at the time the invention was made to replace the driver (the driving circuit) by another driver (sized up driver) because this would equally increase the drivability, thereby it would also equally eliminates violations of crosstalk noise or glitch error.

Tam discloses how to avoid a glitch in the integrated circuit, and is used to support additionally to Young how to increase the driver ability of the driver circuit. Tam replaces the driver/buffer by increasing the size of the buffer and thereby replacing the driver in the victim wire with another one having the higher driving ability then the initial driver (col.3, ll.22-34). Therefore insertion of drivers is equally to the replacement of the driver with another one with higher drivability. In more details resizing of the buffer by Tam means increasing the size of the output buffer to prevent propagation of the glitch.

D. Applicant argues that replacing a driving circuit means that the number of buffers to be inserted is not increased, and in Young the insertion of buffer circuits would increase the number of elements in the circuit. Examiner agreed that inserting of buffers would increase number of elements. But Applicant in claims 20 and 21 fails to teach or suggest or render that number of elements in the modified/replacing circuit is the same as in the original circuit. Examiner believes that replacement of the driving circuit with other may increase number of elements within the replaced driving circuit.

Insertion of repeaters (or drivers) means increasing the drivability. It is well known in the integrated circuit design that a driver or a buffer can be sized up or down. Sizing up means making the driver or the buffer or the repeater size larger in order to increase drivability. Therefore it would have been obvious to a person of ordinary skills in the art at the time the invention was made to replace the driver (the driving circuit) by another driver (sized up driver) because this would equally increase the drivability, thereby it would also equally eliminates violations of crosstalk noise or glitch error.

Tam discloses how to avoid a glitch in the integrated circuit, and is used to support additionally to Young how to increase the driver ability of the driver circuit. Tam replaces the driver/buffer by increasing the size of the buffer and thereby replacing the driver in the victim wire with another one having the higher driving ability then the initial driver (col.3, ll.22-34). Therefore insertion of drivers is equally to the replacement of the driver with another one with higher drivability.

In more details resizing of the buffer by Tam means increasing the size of the output buffer to prevent propagation of the glitch.

Reference of Tam is used not as combination with Young, but to support Young as example of increasing the driver ability of the driver circuit by inserting repeaters (drivers) equally means resizing the buffer by increasing the size of the output buffer to prevent propagation of the glitch.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

Naum Levin (Patent Examiner)

April 26, 2004

VUTHE SIEK
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